

301b - LTM TECHNOLOGY SPECIALIST EXAM BLUEPRINT

ABOUT THE 301B-LTM SPECIALIST: MAINTAIN & TROUBLESHOOT EXAM.

The 301b-LTM Specialist exam is the second exam required to achieve F5 Certified! Technology Specialist, Local Traffic Manager (F5-CTS, LTM) status.

This exam identifies individuals qualified to design, implement, maintain, and troubleshoot advanced F5 product features to enhance the effectiveness of an Application Delivery Network. They possess understanding of underlying principles – from SSL-based VPN implementation to symmetric and asymmetric acceleration – and can draw on that insight to integrate Local Traffic Manager (LTM) into existing networks as well as new implementations.

WHAT IS THE 301B-LTM SPECIALIST EXAM BLUEPRINT?

F5 Certified! Exam Blueprints list all the objectives an exam has to measure, much like a syllabus for the exam itself. The blueprint provides the detailed breakdown of candidate skills and knowledge. Blueprints can be used to identify additional study, and are best used in conjunction with the Exam Study Guides.

PREREQUISITE:

301a-LTM Specialist: Architect, Set-up & Deploy

CREDENTIAL AWARDED:

F5 Certified! Technology Specialist, Local Traffic Manager (F5-CTS, LTM)

THIS EXAM IS BASED ON V11.5.



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EXAM BLUEPRINT



Section 1: Troubleshoot basic virtual server connectivity issues		Cognitive Complexity
Objective 1.01	Given a scenario, determine the appropriate profile setting modifications.	A/E
Examples	Given a scenario of client or server side buffer issues, packet loss, or congestion, select the appropriate TCP or UDP profile to correct the issue Given a scenario determine when an application would benefit from HTTP Compression and/or Web Acceleration profile	
Objective 1.02	Given a sub-set of an LTM configuration, determine which objects to remove or consolidate to simplify the LTM configuration	A/E
Examples	Evaluate which iRules can be replaced with a profile or policy setting Evaluate which host virtual servers would be better consolidated into a network virtual server	
Objective 1.03	Given a set of LTM device statistics, determine which objects to remove or consolidate to simplify the LTM configuration	U/A
Examples	Identify redundant and/or unused objects Identify unnecessary monitoring Interpret configuration and performance statistics Explain the effect of removing functions from the LTM device configuration	
Objective 1.04	Given a scenario, determine the appropriate upgrade and recovery steps required to restore functionality to LTM devices	R
Examples	Identify the appropriate methods for a clean install Identify the TMSH sys software install options required to install a new version Identify the steps required to upgrade the LTM device such as: license renewal, validation of upgrade path, review release notes, etc. Identify how to copy a config to a previously installed boot location/slot Identify valid rollback steps for a given upgrade scenario	
Objective 1.05	Given a scenario, determine the appropriate upgrade steps required to minimize application outages	U/A
Examples	Explain how to upgrade an LTM device from the GUI Describe the effect of performing an upgrade in an environment with device groups and traffic groups Explain how to perform an upgrade in a high availability group	
Objective 1.06	Describe the benefits of custom alerting within an LTM environment	U/A
Examples	Describe how to specify the OIDs for alerting Explain how to log different levels of local traffic message logs Explain how to trigger custom alerts for testing purposes	
Objective 1.07	Describe how to set up custom alerting for an LTM device	R
Examples	List and describe custom alerts: SNMP, email and Remote Syslog Identify the location of custom alert configuration files Identify the available levels for local traffic logging	

Cognitive Complexity Key:
 R=Remember
 A/E=Analyze/Evaluate
 U/A=Understand/Apply



Section 2: Identify and resolve application issues		Cognitive Complexity
Objective 2.01	Determine which iRule to use to resolve an application issue	U/A
Examples	Determine which iRule events and commands to use Given a specific iRule event determine what commands are available	
Objective 2.02	Explain the functionality of a simple iRule	U/A
Examples	Interpret information in iRule logs to determine the iRule and iRule events where they occurred Describe the results of iRule errors	
Objective 2.03	Given specific traffic and configuration containing a simple iRule determine the result of the iRule on the traffic	A/E
Examples	Use an iRule to resolve application issues related to traffic steering and/or application data	
Objective 2.04	Interpret AVR information to identify performance issues or application attacks	U/A
Examples	Explain how to modify profile settings using information from the AVR Explain how to use advanced filters to narrow output data from AVR Identify potential latency increases within an application	
Objective 2.05	Interpret AVR information to identify LTM device misconfiguration	U/A
Examples	Explain how to use AVR to trace application traffic Explain how latency trends identify application tier bottlenecks	
Objective 2.06	Given a set of headers or traces, determine the root cause of an HTTP/HTTPS application problem	U/A
Examples	Explain how to interpret response codes Explain the function of HTTP headers within different HTTP applications (Cookies, Cache Control, Vary, Content Type & Host) Explain HTTP methods (GET, POST, etc.) Explain how to decode POST data	
Objective 2.07	Given a set of headers or traces, determine a solution to an HTTP/HTTPS application problem	A/E
Examples	Investigate the cause of a specific response code Investigate the cause of an SSLHandshake failure Predict the browser caching behavior when application data is received (headers and HTML)	
Objective 2.08	Given a direct trace, a trace through the LTM device, and other relevant information, compare the traces to determine the root cause of an HTTP/HTTPS application problem	A/E

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Examples Given a failed HTTP request and LTM configuration data determine if the connection is failing due to the LTM configuration

Objective 2.09 Given a direct trace, a trace through the LTM device, and other relevant information, compare the traces to determine a solution to an HTTP/HTTPS application problem A/E

Examples Investigate the cause of an SSLHandshake failure
Given a failed HTTP request and LTM configuration data determine if the connection is failing due to the LTM configuration

Objective 2.10 Given a scenario, determine which protocol analyzer tool and its options are required to resolve an application issue U/A

Examples Identify application issues based on a protocol analyzer trace
Explain how to follow a conversation from client side and server side traces
Explain how SNAT and OneConnect effect protocol analyzer traces
Explain how to decrypt SSL traffic for protocol analysis
Explain how to recognize the different causes of slow traffic (e.g., drops, RSTs, retransmits, ICMP errors, demotion from CMP)

Objective 2.11 Given a trace and necessary supporting documentation, determine the root cause of an application problem A/E

Examples Analyze a tcpdump to identify application or configuration problems.

Objective 2.12 Given a trace and necessary supporting documentation, determine a solution to an application problem A/E

Examples Analyze a tcpdump to identify application or configuration problems

Objective 2.13 Given a scenario, determine from where the protocol analyzer data should be collected U/A

Examples Explain how to decrypt SSL traffic for protocol analysis
Explain how to recognize the different causes of slow traffic (e.g., drops, RSTs, retransmits, ICMP errors, demotion from CMP)
Chose the appropriate protocol analyzer for troubleshooting a given problem (e.g., Wireshark, tcpdump, ssldump)
Identify application issues based on a protocol analyzer trace
Explain how SNAT and OneConnect effect protocol analyzer traces

Objective 2.14 Given a trace, identify monitor issues U/A

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Examples Explain how to capture and interpret monitor traffic using protocol analyzer
Explain how to obtain needed input and output data to create the monitors

Objective 2.15 Given a monitor issue, determine an appropriate solution U/A

Examples Determine appropriate monitor and monitor timing based on application and server limitations
Describe how to modify monitor settings to resolve monitor problems

Section 3: Identify and resolve LTM device issues Cognitive Complexity

Objective 3.01 Interpret log file messages and/or command line output to identify LTM device issues U/A

Examples Interpret log file messages to identify LTM device issues
Interpret the qkview heuristic results
Identify appropriate methods to troubleshoot NTP
Identify license problems based on the log file messages and statistics

Objective 3.02 Identify the appropriate command to use to determine the cause of an LTM device problem U/A

Examples Identify hardware problems based on the log file messages and statistics
Identify resource exhaustion problems based on the log file messages and statistics
Identify connectivity problems based on the log files
Determine the appropriate log file to examine to determine the cause of the problem

Objective 3.03 Analyze performance data to identify a resource problem on an LTM device A/E

Examples Analyze performance data to identify a resource problem on an LTM device

Objective 3.04 Given a scenario, determine the cause of an LTM device failover U/A

Examples Explain the effect of network failover settings on the LTM device
Explain the relationship between serial and network failover
Differentiate between unicast and multicast network failover modes
Identify the cause of failover using logs and statistics

Objective 3.05 Given a scenario, determine the cause of loss of high availability and/or sync failure U/A

Examples Explain how the high availability concepts relate to one another
Explain the relationship between device trust and device groups
Identify the cause of config sync failures
Explain the relationship between traffic groups and LTM objects
Interpret log messages to determine the cause of high availability issues

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Cognitive Complexity Descriptions

Lower Order Thinking Skills



Higher Order Thinking Skills

Remember	Understand/Apply	Analyze/Evaluate	Create
Information retrieval	Knowledge transfer	Critical thinking and reasoning	Innovation or Creative thinking
Rote memorization	Comprehension or Ability to apply knowledge to a standard process	Determine how parts relate to whole or Knowledge integration and application to new situation(s)	Forming an original work product
Retrieve relevant knowledge from long-term memory	Construct meaning from information	Make judgments based on criteria	Combine or reorganize parts to form a new pattern or structure
e.g., recall, retrieve, recognize	e.g., interpret, classify, compare, explain, implement	e.g., troubleshoot, attribute, diagnose, critique	e.g., generate, plan, produce

Alpine Testing Solutions' suggested cognitive complexity levels and associated verb references consider multiple approaches to defining cognitive processing (e.g., Anderson et al., Webb, Bloom, Frisbie). Above material created with assistance from Alpine and distributed with Alpine's permission as an attachment to certification test blueprints.



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